

What is claimed is:

1. A capacitor, comprising:

5 a lower electrode;

a dielectric layer formed on the lower electrode, the dielectric layer including a protruding portion;

an upper electrode formed on the protruding portion of the dielectric layer;

a first protection layer pattern formed on the upper electrode; and

10 a second protection layer formed on the first protection layer pattern.

2. The capacitor of claim 1, wherein the lower electrode comprises one of copper and aluminum, and the second protection layer comprises one of silicon nitride and silicon carbide.

15 3. The capacitor of claim 1, wherein a thickness difference between the protruding portion and a non-protruding portion of the dielectric layer is substantially identical to a thickness of the first protection layer pattern.

20 4. The capacitor of claim 1, wherein a thickness difference between the protruding portion and a non-protruding portion of the dielectric layer is substantially identical to a thickness of the second protection layer.

5. The capacitor of claim 1, wherein the upper electrode comprises one of

titanium nitride and tantalum nitride, and the dielectric layer comprises one of oxide, nitride and a composite of oxide and nitride.

6. The capacitor of claim 1, wherein the first protection layer pattern and the second protection layer each comprise one of silicon nitride and silicon carbide.

7. The capacitor of claim 1, wherein the first protection layer pattern has a thickness of about 300Å to about 700Å and the second protection layer has a thickness of about 200Å to about 700Å.

8. The capacitor of claim 1, wherein the second protection layer is formed at least from a sidewall of the first protection layer pattern to a sidewall of the protruding portion of the dielectric layer.

9. A method for manufacturing a capacitor, comprising:
forming a lower electrode in an insulation layer;
forming a dielectric layer on the lower electrode;
forming an upper electrode layer on the dielectric layer;
forming a first protection layer pattern on the upper electrode layer;
etching the upper electrode layer using the first protection layer pattern as an etching mask to form an upper electrode; and
forming a second protection layer enclosing the dielectric layer, the upper electrode and the first protection layer pattern.

10. The method of claim 9, wherein the first protection layer pattern and the dielectric layer adjacent the upper electrode are partially etched during etching of the upper electrode layer.

5 11. The method of claim 10, wherein a thickness of the first protection layer pattern remaining after partial etching is substantially identical to a thickness of the dielectric layer removed by the partial etching.

10 12. The method of claim 10, wherein a thickness of the first protection layer pattern remaining after partial etching is substantially identical to a thickness of the dielectric layer remaining after the partial etching.

15 13. The method of claim 10, wherein a thickness of the second protection layer is substantially identical to a thickness of the dielectric layer removed by partial etching.

14. The method of claim 10, wherein a thickness of the second protection layer is substantially identical to a thickness of the dielectric layer remaining after partial etching.

20 15. A method for manufacturing a semiconductor device, comprising:
forming a first insulation layer on a substrate;
forming a lower wiring and a lower electrode in the first insulation layer;
forming a dielectric layer on the first insulation layer including the lower wiring and

the lower electrode;

forming a conductive layer on the dielectric layer;

forming a first protection layer on the conductive layer;

etching the first protection layer to form a first protection layer pattern on the
5 conductive layer;

etching the conductive layer using the first protection layer pattern as an etching
mask to form an upper electrode on a portion of the dielectric layer positioned on the
lower electrode;

forming a second protection layer on the dielectric layer and on the first protection
10 layer pattern;

forming a second insulation layer on the second protection layer;

forming a first contact contacting the lower wiring through the second insulation
layer;

forming a second contact contacting the upper electrode through the second
15 insulation layer, the second protection layer and the first protection layer pattern; and

forming a first upper wiring on the first contact, and a second upper wiring on the
second contact.

16. The method of claim 15, wherein the first protection layer pattern and the
20 dielectric layer adjacent the upper electrode are partially etched during etching of the
conductive layer so that the portion of the dielectric layer positioned on the lower
electrode protrudes.

17. The method of claim 16, wherein a thickness of the first protection layer

pattern remaining after partial etching and a thickness of the second protection layer remaining after the partial etching are substantially identical to a thickness difference between the portion of the dielectric layer positioned on the lower electrode and a portion of the dielectric layer adjacent the upper electrode.

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18. The method of claim 15, wherein the second protection layer is formed on the portion of the dielectric layer positioned on the lower electrode, a sidewall of the upper electrode and a sidewall of the first protection layer pattern.

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19. The method of claim 15, wherein the lower electrode comprises one of copper and aluminum, the upper electrode comprises one of titanium nitride and tantalum nitride, and the dielectric layer comprises one of oxide, nitride and a composite of oxide and nitride.

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20. The method of claim 15, wherein each of the first protection layer pattern and the second protection layer comprises one of silicon nitride and silicon carbide.

21. The method of claim 15, wherein each of the first upper wiring and the second upper wiring comprises one of copper and aluminum.

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